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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,191	08/18/2003	Martha Gardner	134734	3700

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER	
AHLUWALIA, NAVNEET K	

ART UNIT	PAPER NUMBER
2166	

DATE MAILED: 03/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/643,191	GARDNER ET AL.	
	Examiner	Art Unit	
	Navneet K. Ahluwalia	2166	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08/18/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *02/23/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The application has been examined. Claims 1 – 22 are pending in this office action.

Oath/Declaration

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
It does not identify the citizenship of each inventor.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The language of claim 5 is directed towards a system that has programmable instructions stored in a computer readable medium or embodied in a transmission medium, which are two separate medium types.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claim 5 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 5 is rejected because the language of claim 5 in view of the definition of the computer readable medium from the detailed description of the embodiments renders it as intangible. Thus the claim is directed to a non-statutory subject matter.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philips et al. ('Philips' herein after) (US 6,792,399 B1) further in view of Henly et al. ('Henly' herein after) (EP 1102187 A2).

With respect to claim 1,

Philips discloses a system for assessing and optimizing crude selection comprising:

- a database storing data related to at least one crude or crude blend (column 8 lines 12 – 21 and 31 – 41, Philips); and
- a predictive engine having programmable instructions configured for execution by at least one processor for accessing the database to obtain data and for executing at least one predictive performance and/or risk assessment model designed to optimize or improve a refining process (column 9 lines 34 – 44 and column 56 lines 47 – 56, Philips).

Philips however does not disclose the crude selection and blend.

Henly teaches the crude selection and blend (page 2 paragraph 0004 and 0012, Henly).

It would have been obvious to one of ordinary skill in the art of data processing at the time of the present invention to combine the teachings of cited references because Henly's prediction of properties of and optimization of plant's output of products in combination with the prediction models and risk analyzer of Philips would result in accurate prediction of the crude oil blend to be used (paragraph 0004 and 0012, Henly).

10. Claims 2 - 10 are rejected under the same rationale given for claim 1. The citations of the elements claimed and taught are listed below.

With respect to claim 2,

Philips discloses the system in accordance with claim 1, wherein the predictive engine takes as input crude information corresponding to at least one crude slate and at least one refinery operating parameter and/or condition (column 11 lines 40 – 54, Philips) and uses desirability metrics to assess similarity of the input to data in the database (column 10 lines 59 – 67, Philips).

With respect to claim 3,

Philips discloses the system in accordance with claim 2, wherein the at least one refinery operating parameter and/or condition corresponds to a specific refinery (paragraph 0065, Henly), and wherein the at least one predictive performance or risk assessment model executed by the predictive engine predicts performance or risk measures of refining the at least one crude slate using the specific refinery for running the refining process (paragraphs 0039 and 0043, Henly), probability of problems occurring during the refining process, and distribution of the problems throughout the refining process (column 10 lines 59 – 67, Philips).

With respect to claim 4,

Philips discloses the system in accordance with claim 1, wherein the predictive engine accesses treatment options stored within the database suitable for optimizing

performance of the refining process (column 44 lines 30 – 51, Philips).

With respect to claim 5,

Philips discloses the system in accordance with claim1, wherein the programmable instructions or a portion thereof are stored on a computer readable medium or included in a computer data signal embodied in a transmission medium (Figure 13, Philips).

With respect to claim 6,

Philips discloses the system in accordance with claim 1, wherein the predictive engine comprises:

- a crude search module which takes as input at least one crude name and/or at least one chemical or other characteristic of the at least one crude identifiable by the at least one crude name and outputs information with respect to at least one crude stored in the database, wherein the at least one crude output by the crude search module corresponds to at least one crude identifiable by the at least one crude name, or corresponds to at least one crude having at least one chemical or other property similar to at least one chemical or other property of the at least one crude identifiable by the at least one crude name (column 9 lines 34 – 44 and column 56 lines 47 – 56, Philips);

- an operating parameters/conditions search module which takes as input at least one refinery operating parameter and/or condition and outputs information stored in the database indicating at least one refinery having at least one identical or similar operating parameter and/or condition compared to the at least one refinery operating parameter and/or condition input (column 11 lines 40 – 54, Philips); and
- a crude slate and chemicals selection module which takes as input the information output by the crude search module and the information output by the operating parameters/conditions search module, and outputs at least one proposed crude slate, chemical treatment and/or performance or risk parameter (column 44 lines 30 – 51, Philips).

With respect to claim 7,

Henly teaches wherein the crude slate and chemicals selection module includes a first tier, wherein the first tier identifies at least one crude slate stored in the database which is similar to at least one user-desired crude slate by scoring each crude slate component of the at least one user-desired crude slate based on how well the crude slate component satisfies user criteria, and combines all individual scores of the at least one user-desired crude slate to provide a composite crude slate score; wherein the first tier further scores each individual operating parameter and/or condition based on how well the individual operating parameter and/or condition satisfies the user criteria for that operating parameter and/or condition and outputs an operational score, and then

combines all individual operational scores to provide a composite operational score; and wherein the first tier further determines a highest total overall score by combining the composite crude slate and composite operational scores (paragraphs 0060 and 0062, Henly).

With respect to claim 8,

Henly teaches wherein the crude slate and chemicals selection module further includes a second tier, wherein the second tier includes as an input at least information derived by the first tier and obtains predicted response parameters of interest for selected crude slates, operational parameters and/or conditions, and/or chemical treatments using the at least one predictive performance model (page 1 section 57, Henly).

With respect to claim 9,

Philips discloses the system in accordance with claim 1, wherein the predictive engine executes at least one optimization algorithm for the refining process (column 45 lines 16 – 25 and column 54 lines 61 – 67, Philips).

With respect to claim 10,

Philips discloses the system in accordance with claim 9, wherein the at least one predictive performance model and/or the at least one risk assessment model is a type of model selected from the group consisting of linear regression models; logistic

regression models; non-linear regression models; classification and regression trees and extensions thereof; multiple additive regression splines and extensions thereof; partial least squares regression models (column 12 lines 54 – 62, Philips); generalized additive models; neural networks and extensions thereof, such as projection pursuit regression (column 4 lines 33 – 40 and column 44 lines 26 – 31, Philips); simulation models (column 3 lines 58 – 62, Philips); expert system-based models, such as Bayesian Belief Networks; theoretical calculation models; engineering economic models; financial risk models; decision analytic models; and engineering process models based on chemistry, physics and engineering principles, such as reaction kinetics and thermodynamics, mass transfer, energy transfer, separation processes, and fluid dynamics (column 55 lines 13 – 33, Philips).

With respect to claim 11,

Philips discloses a method for assessing and optimizing crude selection comprising the steps of:

- accessing a database for obtaining data related to at least one stored crude or crude blend (column 8 lines 12 – 21 and 31 – 41, Philips); and
- executing at least one predictive performance and/or risk assessment model designed to optimize or improve a refining process for at least one crude or crude blend (column 9 lines 34 – 44 and column 56 lines 47 – 56, Philips).

Philips however does not disclose the crude selection and blend.

Henly teaches the crude selection and blend (page 2 paragraph 0004 and 0012, Henly).

It would have been obvious to one of ordinary skill in the art of data processing at the time of the present invention to combine the teachings of cited references because Henly's prediction of properties of and optimization of plant's output of products in combination with the prediction models and risk analyzer of Philips would result in accurate prediction of the crude oil blend to be used (paragraph 0004 and 0012, Henly).

11. Claims 12 - 16 are rejected under the same rationale given for claim 11. The citations of the elements claimed and taught are listed below.

With respect to claim 12,

Philips discloses the method in accordance with claim 11, further comprising the steps of:

- taking as input crude information corresponding to the at least one crude or crude blend and at least one refinery operating parameter and/or condition (column 11 lines 40 – 54, Philips); and
- using desirability metrics to assess similarity of the input to data in the database, including the at least one stored crude or crude blend (column 10 lines 59 – 67, Philips).

With respect to claim 13,

Philips discloses the method in accordance with claim 12, wherein the at least one refinery operating parameter and/or condition corresponds to a specific refinery (paragraph 0065, Henly), and wherein the at least one predictive performance or risk assessment model predicts performance or risk measures of refining the at least one crude or crude blend using the specific refinery for running the refining process (paragraphs 0039 and 0043, Henly), probability of problems occurring during the refining process, and distribution of the problems throughout the refining process (column 10 lines 59 – 67, Philips).

With respect to claim 14,

Philips discloses the method in accordance with claim 11, further comprising the step of accessing treatment options stored within the database suitable for improving or optimizing performance of the refining process (column 44 lines 30 – 51, Philips).

With respect to claim 15,

Philips discloses the method in accordance with claim 11, further comprising the step of executing at least one optimization algorithm for the refining process (column 45 lines 16 – 25 and column 54 lines 61 – 67, Philips).

With respect to claim 16,

Philips discloses the method in accordance with claim 15, wherein the at least one predictive performance model and/or the at least one risk assessment model is a

type of model selected from the group consisting of linear regression models; logistic regression models; non-linear regression models; classification and regression trees and extensions thereof; multiple additive regression splines and extensions thereof; partial least squares regression models (column 12 lines 54 – 62, Philips); generalized additive models; neural networks and extensions thereof, such as projection pursuit regression; simulation models (column 3 lines 58 – 62, Philips); expert system-based models, such as Bayesian Belief Networks; theoretical calculation models; engineering economic models; financial risk models; decision analytic models; and engineering process models based on chemistry, physics and engineering principles, such as reaction kinetics and thermodynamics, mass transfer, energy transfer, separation processes, and fluid dynamics (column 55 lines 13 – 33, Philips).

With respect to claim 17,

Philips discloses a computer readable medium storing a set of instructions configured for execution by at least one processor for performing the steps of:

- accessing a database for obtaining data related to at least one stored crude or crude blend (column 8 lines 12 – 21 and 31 – 41, Philips); and
- executing at least one predictive performance or risk assessment model designed to optimize or improve a refining process for at least one crude or crude blend (column 9 lines 34 – 44 and column 56 lines 47 – 56, Philips).

Philips however does not disclose the crude selection and blend.

Henly teaches the crude selection and blend (page 2 paragraph 0004 and 0012, Henly).

It would have been obvious to one of ordinary skill in the art of data processing at the time of the present invention to combine the teachings of cited references because Henly's prediction of properties of and optimization of plant's output of products in combination with the prediction models and risk analyzer of Philips would result in accurate prediction of the crude oil blend to be used (paragraph 0004 and 0012, Henly).

12. Claims 18 - 22 are rejected under the same rationale given for claim 17. The citations of the elements claimed and taught are listed below.

With respect to claim 18,

Philips discloses the computer readable medium in accordance with claim 17, further performing the steps of:

- taking as input crude information corresponding to the at least one crude or crude blend and at least one refinery operating parameter and/or condition (column 11 lines 40 – 54, Philips); and
- using desirability metrics to assess similarity of the input to data in the database, including the at least one stored crude or crude blend (column 10 lines 59 – 67, Philips).

With respect to claim 19,

Philips discloses the computer readable medium in accordance with claim 18, wherein the at least one refinery operating parameter and/or condition corresponds to a specific refinery (paragraph 0065, Henly), and wherein the at least one predictive performance and/or risk assessment model predicts performance or risk measures of refining the at least one crude or crude blend using the specific refinery for running the refining process (paragraphs 0039 and 0043, Henly), probability of problems occurring during the refining process, and distribution of the problems throughout the refining process (column 10 lines 59 – 67, Philips).

With respect to claim 20,

Philips discloses the computer readable medium in accordance with claim 17, further performing the step of accessing treatment options stored within the database suitable for optimizing performance of the refining process (column 44 lines 30 – 51, Philips).

With respect to claim 21,

Philips discloses the computer readable medium in accordance with claim 17, further performing the step of executing at least one optimization algorithm for the refining process (column 45 lines 16 – 25 and column 54 lines 61 – 67, Philips).

With respect to claim 22,

Philips discloses the computer readable medium in accordance with claim 21, wherein the at least one predictive performance model and/or the at least one risk assessment model is a type of model selected from the group consisting of linear regression models; logistic regression models; non-linear regression models; classification and regression trees and extensions thereof; multiple additive regression splines and extensions thereof; partial least squares regression models (column 12 lines 54 – 62, Philips); generalized additive models; neural networks and extensions thereof, such as projection pursuit regression (column 4 lines 33 – 40 and column 44 lines 26 – 31, Philips); simulation models (column 3 lines 58 – 62, Philips); expert system-based models, such as Bayesian Belief Networks; theoretical calculation models; engineering economic models; financial risk models; decision analytic models; and engineering process models based on chemistry, physics and engineering principles, such as reaction kinetics and thermodynamics, mass transfer, energy transfer, separation processes, and fluid dynamics (column 55 lines 13 – 33, Philips).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Navneet K. Ahluwalia whose telephone number is 571-272-5636. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alam T. Hosain can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Navneet K. Ahluwalia
Examiner
Art Unit 2166

Dated: 02/23/2006

HOSAIN ALAM
SUPERVISORY PATENT EXAMINER